DOCUMENT RESUME

ED 082 742 JC 730 242

AUTHOR Greenberg, Barry; Tuckfield, Gloria
TITLE An Investigation of the Differences Between "Successful" and "Unsuccessful" Students in Trigonometry, at Miami-Dade Community College, South Campus.
INSTITUTION Miami-Dade Junior Coll., Fla.
PUB DATE Jul 73
NOTE 4p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS College Mathematics; Community Colleges; *Failure Factors; *Institutional Research; Mathematics Education; Post Secondary Education; *Student Characteristics; *Success Factors; *Trigonometry

ABSTRACT

Research was conducted to develop a means of identifying, upon entry into the course, the students most likely not to succeed in trigonometry, with the intention of using the prediction to apply an intervention strategy. A 64-item questionnaire was developed and administered to a sample of students enrolled in the course in the winter 1973 semester, and eight items were selected from the questionnaire for inclusion in a stepwise discriminant analysis. The analysis showed that the variables which contributed most to discriminating between successes and failures were cumulative Miami-Dade GPA, Florida Twelfth Grade total score, FTG math score, and whether the student had made a career choice or not. A second discriminant analysis showed that the best prediction resulted from the use of cumulative GPA as a single factor. According to the findings, a student with a cumulative GPA of 2.60 or over is likely to succeed in the course in 83 0/0 of the cases. (KM)

ED 082742

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

AN INVESTIGATION OF THE DIFFERENCES BETWEEN "SUCCESSFUL" AND "UNSUCCESSFUL" STUDENTS IN TRIGONOMETRY, AT MIAMI-DADE COMMUNITY COLLEGE, SOUTH CAMPUS

Barry Greenberg, Chairman of Research

Gloria Tuckfield, Counselor

Miami-Dade Community College, South Campus

July 1973

JC 730 242

FILMED FROM BEST AVAILABLE COPY

AN INVESTIGATION OF THE DIFFERENCES BETWEEN "SUCCESSFUL" AND "UNSUCCESSFUL" STUDENTS IN TRIGONOMETRY, AT MIAMI-DADE COMMUNITY COLLEGE, SOUTH CAMPUS

OBJECTIVES: The large number of students who fail to complete mathematics courses at MDCC (South Campus) has been of concern for some time now. Examination of a recent "Grade List Summary Report By Course" indicates that during the 1972 Fall Term, of the 203 students enrolled in MAT 122 (trigonometry), 98 received grades of "F", "W", or "WD" and , in the subsequent Winter Term, of the 311 students enrolled, 170 students did not succeed. As greater numbers of students become enrolled in MAT 122 and growing numbers of these students cease to complete the course, it becomes of increasing concern to uncover principal factors that appear to play a significant role in determining "successful" or "unsuccessful" performance.

The purpose of this investigation was to develop a means of identifying, upon entry into the course, the students most likely not to succeed. This predictive information would then be used to apply an appropriate intervention strategy.

METHODOLOGY: After an extensive review of the literature dealing with factors likely to be associated with student success and failure, and upon interviewing students previously enrolled in the course, some of whom completed the course and some of whom withdrew, a 64 item questionnaire was developed and then administered to a sample of students enrolled in the course in the Winter, 1973 semester. The questionnaires were administered during the second week of the semester in classes where faculty gave permission. In all, five of the nine sectors were covered for a total of 103 students. Items dealt with the individual's perception of his math aptitude, achievements, study habits, personality and socio-economic

characteristics.

Items were selected from this questionnaire for inclusion in a stepwise discriminant analysis on the basis of whether:

(1) the frequency counts indicated great variability on the part of respondents, or

(2) they had been repeatedly referred to in the literature as being likely contributors to a student's failure to succeed

In this manner the following items were selected:

1. level of education of student's father
2. if the student was paying for his tuition or not
3. if the student had made his career choice or not
4. student's cumulative college GPA prior to enrolling in trigonometry
5. high school math grades classified as outstanding, good, fair, poor, or very poor
6. student's judgement of his study habits, as excellent, good, fair, poor, or very poor
7. student's judgement of his attitude toward the trigonometry course.
8. student's total Florida Twelfth Grade Score
9. student's score on math subtest of Florida Twelfth Grade

RESULTS

The stepwise discriminant analysis showed that the four variables which contributed most to discriminating between successful and failing students were cumulative Miami-Dade Community College GPA, FTG total, FTG math, and whether the student had made a career choice or not. This latter variable was eliminated from later analyses since its use did not reduce the number of incorrect predictions of particular concern.*

---

*There are four kinds of predictions. Correct: 1. Student predicted to succeed and he succeeds. 2. Student predicted to fail and he fails. Incorrect: 3. Student predicted to succeed and he fails. 4. Student predicted to fail and he succeeds. It is errors of type three above which we sought to reduce.

A second discriminant analysis was performed using the three remaining variables separately and also in combination. The best prediction resulted from the use of cumulative GPA as a single factor since it produced the fewest number of students classified as "successes" who, in fact, were unsuccessful.

According to the findings a student with a cumulative GPA of 2.60 or over is likely to succeed in the trigonometry course in 83% of the cases.

DISCUSSION

It is important to point out that these findings are inexact to the extent that there will be students with a cumulative GPA below 2.60 who will succeed in MAT 122 and vice versa.

To prevent the placing of students into fixed categories of "success" or "failure" (and thus to some degree influence his in-course behavior and even his end-of-course grade) these results should be used by sensitive professionals who recognize that the process of performance forecasting is inexact. In using this study, harm must not be done to the student's self-esteem and/or his educational motivation. The challenge is to use these findings to increase a given student's probability of succeeding in the course.

UNIVERSITY OF CALIF.
LOS ANGELES

NOV 9 1973

CLEARINGHOUSE FOR
JUNIOR COLLEGE
INFORMATION